

AMENDMENTS TO THE CLAIMS

This listing of claims replaces all prior versions of claims in the application.

1. (Currently amended): A viewing angle magnification liquid crystal display comprising at least:

a backlight system containing a polarization element (A) wherein said polarization element (A) comprises obtained by disposing a retardation layer (b) ~~between at least two layers, included in~~ and a reflection polarizer (a), wherein said reflection polarization (a) comprises at least two layers and said retardation layer (b) is disposed between said at least two layers, and said reflection polarizer (a) has having respective selective reflection wavelength bands of polarized light superimposed on each other to conduct collimation for a diffusion light source;

a liquid crystal cell transmitting collimated lights;

a polarizing plate polarizing plates disposed on both sides of the liquid crystal cell; and

a viewing angle magnifying layer disposed on the viewer side of the liquid crystal cell to diffuse transmitted light, wherein

the reflection polarizer (a) is a circular polarization type reflection polarizer (a1) transmitting circularly polarized light but selectively reflecting reverse circularly polarized light, and

the retardation layer (b) comprises a layer (b1) having a front retardation of almost zero and a retardation of $\lambda/8$ or more relative to incident light incoming at a direction inclined from the normal direction by 30° or more.

2. (Original): The viewing angle magnification liquid crystal display according to claim 1, wherein

the selective reflection wavelengths of the at least two layers of the reflection polarizer (a) are superimposed on each other in the wavelength range of $550\text{ nm} \pm 10\text{ nm}$.

3. Cancelled.

4. (Currently Amended): A viewing angle magnification liquid crystal display comprising at least:

a backlight system containing a polarization element (A) wherein said polarization element (A) comprises a retardation layer (b) and a reflection polarizer (a), wherein said reflection polarizer (a) comprises at least two layers and said retardation layer (b) is disposed between said at least two layers, and said reflection polarizer (a) has respective selective reflection wavelength bands of polarized light superimposed on each other to conduct collimation for a diffusion light source;

a liquid crystal cell transmitting collimated lights;

polarizing plates disposed on both sides of the liquid crystal cell; and

a viewing angle magnifying layer disposed on the viewer side of the liquid crystal cell to diffuse transmitted light, The viewing angle magnification liquid crystal display according to claim 1, wherein

the reflection polarizer (a) is a linear polarization type reflection polarizer (a2) transmitting one of linearly polarized lights perpendicular to each other, but selectively reflecting the other thereof,

the retardation layer (b) comprises a layer (b1) having a front retardation (~~in the normal direction~~) of almost zero and a retardation of $\lambda/4$ or more relative to incident light incoming at a direction inclined from the normal direction by 30° or more,

layers (b2) each having a front retardation of about $\lambda/4$ disposed on both sides of the layer (b1), one of the layers (b2) being disposed between the retardation layer (b1) and a corresponding linear polarization type reflection polarizer (a2) and the other of the layers (b2) being disposed between the retardation layer (b1) and another linear polarization type reflection polarizer (a2),

the layer (b2) on the incidence side is arranged at ~~an angle of 45° (-45°) $\pm 5^\circ$~~ an angle of $45^\circ \pm 5^\circ$ or an angle of $-45^\circ \pm 5^\circ$ relative to the polarization axis of the linear polarization type reflection polarizer (a2) on the incidence side,

the layer (b2) on the emission side is arranged at ~~an angle of 45° ($+45^\circ$) $\pm 5^\circ$~~ an angle of $-45^\circ \pm 5^\circ$ or an angle of $45^\circ \pm 5^\circ$ relative to the polarization axis of the linear polarization type reflection polarizer (a2) on the emission side, and

the layer (b2) on the incidence side and the layer (b2) on the emission side are arranged at an arbitrary angle formed between ~~the respective slow axes thereof~~ the slow axis of the layer (b2) on the incidence side and the slow axis of the layer (b2) on the emission side.

5. (Currently Amended): A viewing angle magnification liquid crystal display comprising at least:

a backlight system containing a polarization element (A) wherein said polarization element (A) comprises a retardation layer (b) and a reflection polarizer (a), wherein said reflection polarizer (a) comprises at least two layers and said retardation layer (b) is disposed between said

at least two layers, and said reflection polarizer (a) has respective selective reflection wavelength bands of polarized light superimposed on each other to conduct collimation for a diffusion light source;

a liquid crystal cell transmitting collimated lights;

polarizing plates disposed on both sides of the liquid crystal cell; and

a viewing angle magnifying layer disposed on the viewer side of the liquid crystal cell to diffuse transmitted light. The viewing angle magnification liquid crystal display according to claim 1, wherein

the reflection polarizer (a) is a linear polarization type reflection polarizer (a2) transmitting one of linearly polarized lights perpendicular to each other, but selectively reflecting the other thereof,

the retardation layer (b) comprises two biaxial retardation layers (b3) each having a front retardation (~~in the normal direction~~) of about $\lambda/4$ and an Nz factor of 2 or more,

the slow axis direction of the layer (b3) on the incidence side is arranged at ~~an angle of 45°~~
~~(-45°) ± 5°~~ an angle of 45° ± 5° or an angle of -45° ± 5° relative to the polarization axis of the linear polarization type reflection polarizer (a2) on the incidence side,

the slow axis direction of the layer (b3) on the emission side is arranged at ~~an angle of~~
~~-45° (+45°) ± 5°~~ an angle of -45° ± 5° or an angle of 45° ± 5° relative to the polarization axis of the linear polarization type reflection polarizer (a2) on the emission side, and

the layer (b3) on the incidence side and the layer (b3) on the emission side are arranged at an arbitrary angle formed between ~~the respective slow axes thereof~~ the slow axis of the layer (b3) on the incidence side and the slow axis of the layer (b3) on the emission side.

6. (Currently Amended): A viewing angle magnification liquid crystal display comprising at least:

a backlight system containing a polarization element (A) wherein said polarization element (A) comprises a retardation layer (b) and a reflection polarizer (a), wherein said reflection polarizer (a) comprises at least two layers and said retardation layer (b) is disposed between said at least two layers, and said reflection polarizer (a) has respective selective reflection wavelength bands of polarized light superimposed on each other to conduct collimation for a diffusion light source;

a liquid crystal cell transmitting collimated lights;
polarizing plates disposed on both sides of the liquid crystal cell; and
a viewing angle magnifying layer disposed on the viewer side of the liquid crystal cell to diffuse transmitted light. The viewing angle magnification liquid crystal display according to
claim 1, wherein

the reflection polarizer (a) is a linear polarization type reflection polarizers (a2) transmitting one of linearly polarized lights perpendicular to each other, but selectively reflecting the other thereof,

the retardation layer (b) comprises one biaxial retardation layer (b4) having a front retardation (~~in the normal direction~~) of about $\lambda/2$ and an Nz factor of 1.5 or more,

the slow axis direction of the ~~layer~~ retardation layer (b4) on the incidence side is arranged at ~~an angle of 45° (−45°) ± 5°~~ an angle of 45° ± 5° or an angle of −45° ± 5° relative to the polarization axis of the linear polarization type reflection polarizer (a2) on the incidence side,

the slow axis direction of the ~~layer~~ retardation layer (b4) on the emission side is arranged at ~~an angle of 45° (+45°) ± 5°~~ an angle of −45° ± 5° or an angle of 45° ± 5° relative to the polarization axis of the linear polarization type reflection polarizer (a2) on the emission side, and

the polarization axes of the two linear polarization type reflection polarizers (a2) are almost perpendicular to each other.

7. (Previously Presented): The viewing angle magnification liquid crystal display according to claim 1, wherein

the retardation layer (b1) is of a cholesteric liquid crystal phase, having a selective reflection wavelength band in a region outside the visible light region, and fixed in a planar alignment state.

8. (Previously Presented): The viewing angle magnification liquid crystal display according to claim 1, wherein

the retardation layer (b1) is of a rod-like liquid crystal fixed in a homeotropic alignment state.

9. (Previously Presented): The viewing angle magnification liquid crystal display according to claim 1, wherein

the retardation layer (b1) is of a discotic liquid crystal fixed in an alignment state of a nematic phase or a columnar phase.

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10. (Previously Presented): The viewing angle magnification liquid crystal display according to claim 1, wherein

the retardation layer (b1) is a biaxially aligned polymer film.

11. (Previously Presented): The viewing angle magnification liquid crystal display according to claim 1, wherein

the retardation layer (b1) is of an inorganic layered compound with a negative uniaxiality fixed in an alignment state so that the normal direction of a surface of the compound is an optical axis.

12. (Currently Amended): The viewing angle magnification liquid crystal display according to claim [[3]] 1, wherein

the circular polarization type reflection polarizer (a1) comprises a cholesteric liquid crystal.

13. (Currently Amended): The viewing angle magnification liquid crystal display according to claim [[3]] 1, wherein

a $\lambda/4$ plate is disposed on the viewer side (~~the liquid crystal cell side~~) of the circular polarization type reflection polarizer (a1), and an axis direction of a linearly polarized light obtained by transmission and a transmission axis direction of a polarizing plate on the lower surface side (~~the light source side~~) of the liquid crystal display are disposed in alignment with each other.

14. (Previously Presented): The viewing angle magnification liquid crystal display according to claim 4, wherein

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the linear polarization type reflection polarizer (a2) is a stretched resin laminate with multiple layers comprising resin materials having respective different refractive indexes and retardation.

15. (Currently Amended): The viewing angle magnification liquid crystal display according to claim 4, wherein

an axis direction of a linearly polarized light obtained by transmission of the linear polarization type reflection polarizer (a2) and a transmission axis direction of a polarizing plate on the lower surface side (~~the light source side~~) of the liquid crystal display are disposed in alignment with each other.

16. (Previously Presented): The viewing angle magnification liquid crystal display according to claim 1, wherein

the viewing angle magnifying layer is a diffusion plate having substantially neither backscattering nor polarization cancellation.

17. (Currently Amended): The viewing angle magnification liquid crystal display according to claim 1,

wherein ~~each of layers is~~ all layers are laminated using a transparent adhesive agent or pressure-sensitive adhesive agent.

18. (New): The viewing angle magnification liquid crystal display according to claim 4. wherein

the selective reflection wavelengths of the at least two layers of the reflection polarizer (a) are superimposed on each other in the wavelength range of $550 \text{ nm} \pm 10 \text{ nm}$.

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19. (New): The viewing angle magnification liquid crystal display according to claim 5, wherein

the selective reflection wavelengths of the at least two layers of the reflection polarizer (a) are superimposed on each other in the wavelength range of $550\text{ nm} \pm 10\text{ nm}$.

20. (New): The viewing angle magnification liquid crystal display according to claim 6, wherein

the selective reflection wavelengths of the at least two layers of the reflection polarizer (a) are superimposed on each other in the wavelength range of $550\text{ nm} \pm 10\text{ nm}$.

21. (New): The viewing angle magnification liquid crystal display according to claim 5 wherein

the linear polarization type reflection polarizer (a2) is a stretched resin laminate with multiple layers comprising resin materials having respective different refractive indexes and retardation.

22. (New): The viewing angle magnification liquid crystal display according to claim 5, wherein

an axis direction of a linearly polarized light obtained by transmission of the linear polarization type reflection polarizer (a2) and a transmission axis direction of a polarizing plate on the lower surface side of the liquid crystal display are disposed in alignment with each other.

23. (New): The viewing angle magnification liquid crystal display according to claim 6, wherein

the linear polarization type reflection polarizer (a2) is a stretched resin laminate with multiple layers comprising resin materials having respective different refractive indexes and retardation.

24. (New): The viewing angle magnification liquid crystal display according to claim 6, wherein

an axis direction of a linearly polarized light obtained by transmission of the linear polarization type reflection polarizer (a2) and a transmission axis direction of a polarizing plate on the lower surface side of the liquid crystal display are disposed in alignment with each other.

25. (New): The viewing angle magnification liquid crystal display according to claim 4, wherein

the viewing angle magnifying layer is a diffusion plate having substantially neither backscattering nor polarization cancellation.

26. (New): The viewing angle magnification liquid crystal display according to claim 4, wherein all layers are laminated using a transparent adhesive agent or pressure-sensitive adhesive agent.

27. (New): The viewing angle magnification liquid crystal display according to claim 5, wherein

the viewing angle magnifying layer is a diffusion plate having substantially neither backscattering nor polarization cancellation.

28. (New): The viewing angle magnification liquid crystal display according to claim 5, wherein

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all layers are laminated using a transparent adhesive agent or pressure-sensitive adhesive agent.

29. (New): The viewing angle magnification liquid crystal display according to claim 6, wherein

the viewing angle magnifying layer is a diffusion plate having substantially neither backscattering nor polarization cancellation.

30. (New): The viewing angle magnification liquid crystal display according to claim 6, wherein all layers are laminated using a transparent adhesive agent or pressure-sensitive adhesive agent.